Organic thin film battery

This work describes the development of a novel organic cathode chemistry with significant intrinsic electronic conductivity for solid-state thin film batteries. A polymeric charge transfer complex (CTC) cathode, poly(4-vinylpyridine)-iodine monochloride (P4VP·ICl), was prepared by initiated chemical vapor deposition (iCVD). Critical chemical ...

Molecular layer deposition (MLD) is an emerging thin-film technique with exclusive advantages of depositing hybrid organic-inorganic materials at a nanoscale level and with well tunable and...

As one of the highlights we discuss thin-film microbatteries fabricated using the atomic/molecular layer deposition (ALD/MLD) technique, where ultrathin layers of the LiPON electrolyte are combined with lithium quinone and terephthalate electrodes.

During his PhD work, he specialized in atomic/molecular layer deposition of lithium containing materials and fabrication of all-solid-state thin film batteries by ALD. Currently, he holds an MSCA Individual Fellowship at UGent where he works towards the utilization of hybrid metal-organic thin films in neuromorphic computing.

A high-rate performance enhancement of a poly(2,2,6,6-tetramethylpiperidin-1-oxy-4-yl methacrylate) (PTMA) brush as a thin-film organic radical cathode is achieved by grafting density reduction. n-Octyltrichlorosilane as a capping agent diluted the surface initiator density on the indium tin oxide (ITO) substrate. Surface initiator-modified ITO substrates (1% and 100%) ...

A thin-film microbattery where the components are deposited from gaseous precursors is the ...

Instead of the flat plateaus typically observed for the batteries based on organic liquid electrolytes, the voltage for the fabricated flexible LIBs, exhibits an increasing/decreasing trend. This trend was also observed in the case of the battery based on polyethylene oxide (PEO) gel electrolyte ...

It has been used to manufacture thin, flexible batteries using roll-to-roll technology for high-volume production. The process involves printing inks onto a substrate material with precise control of patterns. Screen-printing can consistently produce batteries that meet device geometries and requirements, addressing the need for ...

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